

# GECO 2013

Monter dans le train de l'innovation ?  
lequel, quand et comment ?

Innovations

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Hubert Lanternier

Physicians and surgeons are fond of the term “paradigm shift.” This is a gentle phrasing of a disruptive concept. It suggests that the familiar practices of today will gradually and peacefully transition to the kinder, gentler, more advanced practices of tomorrow. It suggests that we will barely notice the shift as we transition easily to new technologies. It may be reassuring to view paradigm shifts in terms of riding the gentle waves of change, but nothing could be further from the truth. Technological change is not

Technological change is not gentle, it is not easy, and it is often not kind. It does not ask permission.



SHOULDER AND  
ELBOW  
SURGERY

[www.elsevier.com/locate/ymse](http://www.elsevier.com/locate/ymse)

## Expanding the frontiers of shoulder arthroscopy

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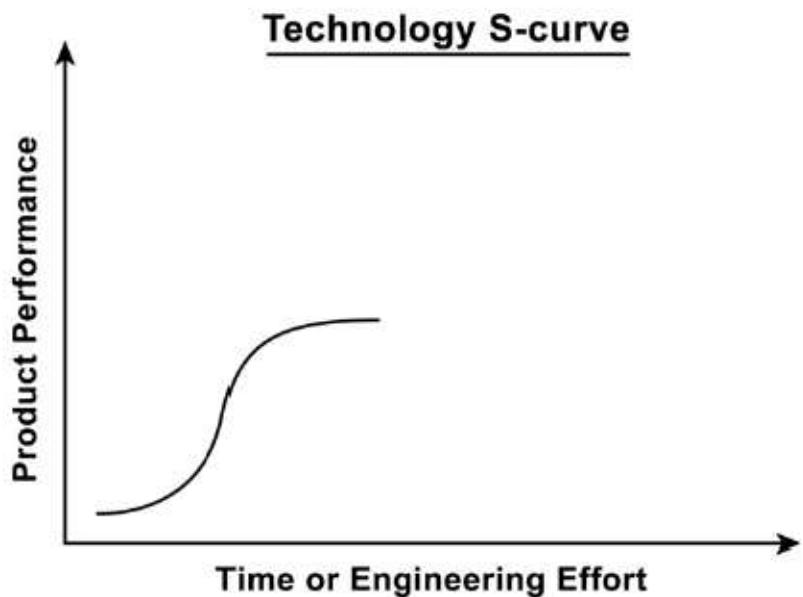
# L'innovation, c'est difficile, c'est laborieux, ce n'est pas une mise à jour automatique

Knee Surg Sports Traumatol Arthrosc (2012) 20:5–47

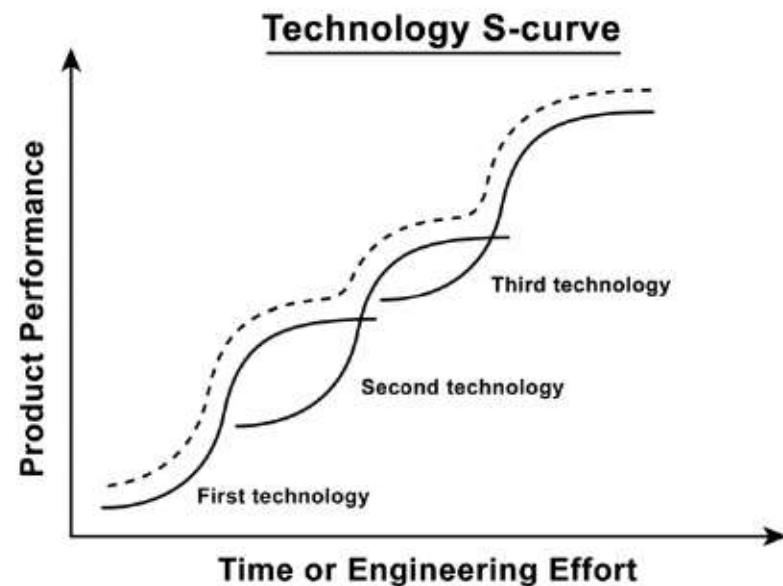
**Fig. 35** David MacIntosh of Toronto (on far left) performing his extra-articular fascia lata tenodesis. The procedure was popular with surgeons during the 1980 and 1990s and was used in isolation or in combination with intra-articular reconstructions (photograph courtesy of David Dandy; Illustration with kind permission of Elsevier, Oxford) [129]



# La courbe S

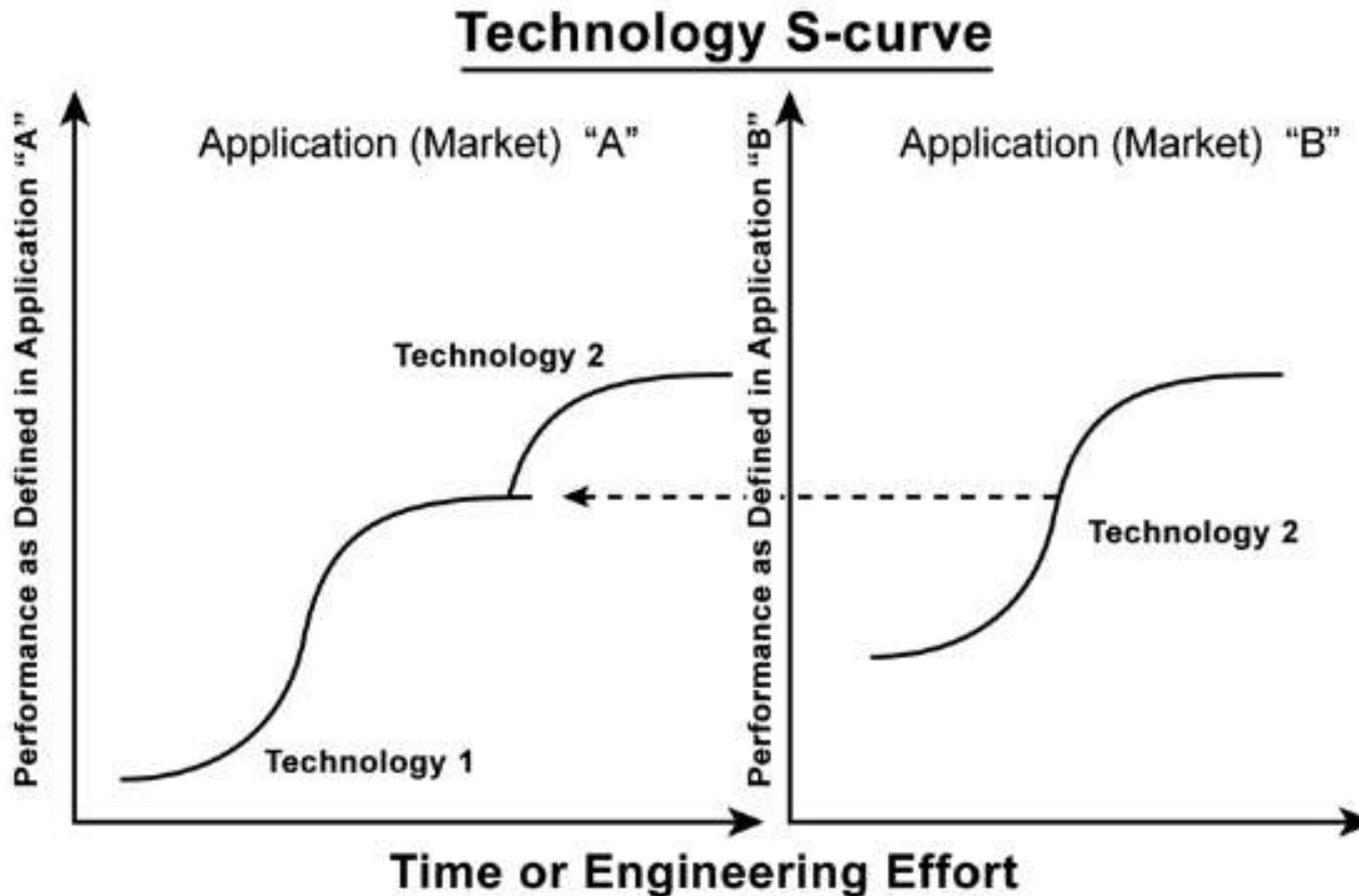


**Figure 1** Technology S-curve. The rate of progress is initially slow; it then accelerates and then reaches a physical limit.



**Figure 2** Enhancement technologies produce improvements by the method of stair-step intersection of S-curves.

# La courbe S et la concurrence



**Figure 3** A disruptive technology develops in one market until it reaches the performance demands of another market. Then it invades the second market, disrupting the established technology.

## Faut il suivre ?

### Il faut rester vigilant et à l'écoute

- IBM leader incontesté des gros ordinateurs néglige l'émergence des petits ordinateurs

Clayton Christensen is an associate professor at the Harvard Business School. He coined the term “disruptive technology” and identified it as the way that rapid paradigm shifts occur. In his book *The Innovator’s Dilemma*, he described the computer industry as a prime example of the contrasting means by which change can occur.<sup>6</sup>

Christensen CM. *The innovator’s dilemma*. New York: Harper Business; 2006.

# Faut il suivre ?

## Il faut relire le passé pour le regarder avec humilité

- Les replis synoviaux, la compresse OhAP pour combler les OTV, les ligaments synthétiques, la méniscectomie au Laser, les PTG en Titane, les rotules metal-back, les plateaux PTG PE chargés de Carbone, les xénogreffes bovines, la PTG mini invasive « par le côté », et autres ...
- C'est arrivé près de chez nous, ça peut revenir soyons vigilants



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## Basic elements, biomechanics, preliminary clinical results with proflex in the replacement of the anterior cruciate ligament.

sport à 3 mois

arguments [ except de "secdens" procedure  
[ respecte "des strucct anatomy"  
[ simplifie  
[ réduc precoce

The technique of repair or replacement of the A.C.L. often being unsatisfactory and sometimes even impossible to carry out, the salvage operation must consist in the use of artificial ligaments. Furthermore these allografts offer numerous advantages: a simplified procedure, insertion by arthrotomy or arthroscopy, preservation of the anatomic structure of the knee, early postoperative reeducation and resumption of sports.

*The further backward you look, the further forward you can see.*

Winston Churchill



# Faut il suivre ?

## Il faut garder le sens critique

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### Anterior cruciate ligament reconstruction using the Leeds Keio Terylene ligament.

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(Bouchons œnous)

Instability of the knee following rupture of the anterior cruciate ligament (A.C.L.) has been treated by several methods in the past. This paper describes experience in several centres in the North of England using the Leeds Keio Terylene Ligament as an A.C.L. replacement. It describes a series of 50 cases with a follow up of from 1 to 4 years. An account is given of the pre-operative assessment, selection of cases, summary of the surgical technique and the post-operative results, as assessed by:

1. Clinical examination by the surgeon.
2. Stress measurement using the Stryker KT-1000.
3. Using the Cincinnati Sports Medicine Self-Assessment Knee Chart.

#### Results:

Clinical examination including the use of lateral radiographs of the knee under tension showed increased stability of the joint. The Cincinnati Self Assessment Knee Chart typically showed an improvement of from 40 to 70 on a scale of 100. The Stryker KT-1000 did show reproducible results and indicated a significant improvement in stability but we are less convinced about the reliability of this method as an indication of improvement.

(La de réponses)

#### Discussion:

From our study of 50 cases, we are convinced that reconstruction of the A.C.L. by the Leeds Keio Ligament is a reliable and effective means of stabilising a knee joint, even in a young athlete, where it can be demonstrated that the instability is due to rupture of the A.C.L. The post-operative behaviour of the ligament, as assessed by arthroscopy and histology of the A.C.L., subsequent to repair, indicates that it is surrounded by firm fibrous tissue, similar to that of the original ligament and remains stable over the period of review.

#### Summary:

The use of the Leeds Keio Ligament is recommended as a reliable method of repairing the ruptured anterior cruciate ligament. It produces a stable knee which is sufficiently strong to give a satisfactory performance even in a young athlete. It is surrounded by strong fibrous tissue which appears to establish a sound biological ligament of lasting strength.

forts et lach restent sensibl-t-il....

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### Reconstruction of the anterior cruciate ligament using a ligament prosthesis.

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76 patients (27 women and 49 men, age range 16–35 years) were operated on because of anterior cruciate insufficiency. The patients were selected from a larger population subjected to muscle rehabilitation due to significant instability of the knee. Only those who still had significant problems in spite of complete muscle rehabilitation were accepted for operation. The 76 patients were about 30% of the original population. The anterior cruciate was replaced by a dacron prosthesis using a new technique for accurate positioning of the drill holes. Stability, muscle strength and knee function were measured before and on several occasions after the operation. The positioning of the prosthesis was controlled by X-ray. Immediate rehabilitation with full weightbearing was allowed after the operation.

#### Results:

The preoperative mean Lysholm knee function score was 67.5 which increased to 90.8 in 39 patients followed for 1 year and to 93.7 in 37 patients followed for 2 years. Stability measured as a difference between legs with a laxity tester was preoperatively 7 mm, at 1 year 0.5 mm and at 2 years 0.8 mm. Muscle strength was generally normal at 5 months postop and the results of a figure-8-run as well as a one leg hop test were normalized at one year.

#### Complications:

There have been 4 cases of graft rupture (5%), two have had another dacronegraft inserted, one has no instability and one is waiting for a reoperation. One patient has had a synovial fistula which healed after removal of the graft and one a superficial wound infection which healed without consequences. Repeat arthroscopy in about 30% of the patients has shown good collagen ingrowth into the prosthesis as well as synovial covering. The 2 year results are promising but with time the number of ruptured grafts will probably increase. The technique should be regarded as experimental until longer follow ups in controlled series can be provided.

ne pas opér pour le 28). qui résistent au tp  
medicat.  
ligh. Stryker

( on espère que lors de la rupture (3-5 ans)  
le sujet n'aime plus besoin de son LCA.  
"peut l'âge de dépendre de son LCA"

# Faut il suivre ?

Il faut lire le présent pour connaitre les mouvements et leurs évaluations

- Lire, discuter, partager
- Savoir sortir de son cercle d'amis fidèles qui sont toujours d'accord avec vous
- Aller voir les autres opérer
- Et voyager ; ça fait du bien

# Innovation : mode d'emploi

## 1 se méfier

- Se méfier de soi « ma technique marche très bien, je ne vois pas pourquoi je changerais »
- Se méfier des autres « moi j'en ai fait 100 avec 100 % de bons résultats »
- Se méfier du commercial : il vend du rêve, c'est son métier

With knowledge increasing at rocket-like speed, we can choose either to resist the change that is the byproduct of this knowledge or to ride the rocket. [.....]

# Innovation : mode d'emploi

## 2 avancer

- Avoir en permanence un projet de remise en question
- Avoir régulièrement une de nos opération en « learning curve »

Change is intimidating. Adopting change can be challenging. But truly assimilating change is exhilarating.

In today's Information Age, the rapid doubling time of human knowledge makes change inevitable. In 1950, the doubling time was 10 years. By 2004, the doubling time was 18 months.<sup>9</sup>

Faut il suivre ?

les implants ne sont pas les procédés

## Paradoxe étonnant

- Il est simple de changer d'implant, et pourtant les conséquences sont durables si défaillance (par exemple couple de frottement, matériaux)
- Il est compliqué de changer de technique, et pourtant les conséquences sont temporaires si défaillance (par exemple navigation, mode de visée)

# Faut il suivre ?

Le progrès n'apparaît pas où on l'attend

- ... Thomas Edison, père de la Chirurgie Moderne...

Edison was not a surgeon. He didn't know anatomy, and he never conducted a single biological experiment. But consider this. Prior to the invention of the light bulb, much of the surgery that was done in the United States was performed outdoors on a sunny day so that the surgeon could see to operate.<sup>7</sup> It was necessary to operate outdoors because ether was highly flammable and the use of indoor lanterns with an open flame for lighting was extremely dangerous.

# Conclusion : Faut il suivre ?

- Oui, il faut suivre, et pour cela :
- - 1 Etre au courant : regarder, lire, voir, écouter
- - 2 Garder le sens critique
- Et il faut régler le curseur :
- - 3 Too high : foncer sur tout ce qui bouge
- - 4 Too low : habiller notre paresse naturelle du costume de la prudence désabusée

Technological change is not gentle, it is not easy, and it is often not kind. It does not ask permission.



Merci de votre attention

Thank you for your attention